

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
13 October 2005 (13.10.2005)

PCT

(10) International Publication Number  
**WO 2005/095054 A1**

(51) International Patent Classification<sup>7</sup>: **B24B 37/04**,  
41/06, 7/17

(21) International Application Number:  
PCT/US2005/001732

(22) International Filing Date: 20 January 2005 (20.01.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/554,684 19 March 2004 (19.03.2004) US

(71) Applicant (for all designated States except US): **MEMC  
ELECTRONIC MATERIALS, INC.** [US/US]; 501 Pearl  
Drive, P.O. Box 8, St. Peters, MO 63376 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **BHAGAVAT,**

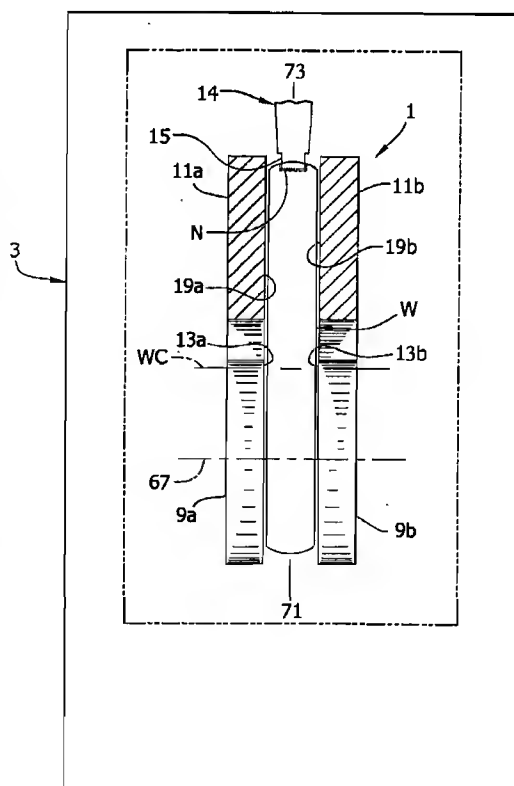
Millind, S. [IN/US]; 4113 Monsoon Lane, Columbia,  
MO 65202 (US). **GUPTA, Puneet** [IN/US]; 9030 Eager  
Road, Apt. #1C, St. Louis, MO 63144 (US). **VAN-  
DAMME, Roland** [US/US]; 1020 Sycamore Creek Drive,  
Wentzville, MO 63385 (US). **KAZAMA, Takuto** [JP/JP];  
11-2 Klyohara Industrial Plant, Utsunomiya City, Tochigi  
321-32 (JP). **TACHI, Noriyuki** [JP/JP]; 11-2 Klyohara  
Industrial Plant, Utsunomiya City, Tochigi 321-32 (JP).

(74) Agents: **JAMES, Kurt, F.** et al.; Senniger, Powers, Leavitt  
& Roedel, #1 Metropolitan Square, 16th Floor, St. Louis,  
MO 63102 (US).

(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,

[Continued on next page]

(54) Title: **WAFER CLAMPING DEVICE FOR A DOUBLE SIDE GRINDER**



(57) Abstract: A hydrostatic pad for use in holding a semicon-  
ductor wafer during grinding of the wafer by grinding wheels.  
The pad includes hydrostatic pockets formed in a face of the body  
directly opposed to the wafer. The pockets are adapted for re-  
ceiving fluid through the body and into the pockets to provide a  
barrier between the body face and the workpiece while still ap-  
plying pressure to hold the workpiece during grinding. The hy-  
drostatic pads allow the wafer to rotate relative to the pads about  
their common axis. The pockets are oriented to reduce hydro-  
static bending moments that are produced in the wafer when the  
grinding wheels shift or tilt relative to the hydrostatic pads, help-  
ing prevent nanotopology degradation of surfaces of the wafer  
commonly caused by shift and tilt of the grinding wheels.



PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ,  
TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA,  
ZM, ZW.

SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN,  
GQ, GW, ML, MR, NE, SN, TD, TG).

(84) **Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO,

**Published:**

— with international search report

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*